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Repeated administrations of crotalid Fab antivenin in the same patient

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To the Editor:

—The new crotaline Fab fragment (CroFab) antivenin is thought to be associated with a lower rate of acute allergic reaction as compared to the whole immunoglobulin product. Nevertheless, acute allergic reactions have been reported after CroFab administration. We report a case in which the same patient received CroFab on 6 separate occasions.

A 25-year-old man presented to the emergency department 75 minutes after he was bitten on the left hand by a prairie rattlesnake (*Crotalus viridis viridis*). He complained of pain, swelling, and erythema at the bite site, but no systemic symptoms. His vital signs were normal. A single puncture was noted over the left thenar eminence with swelling to the wrist and tender, red streaking to the axilla. His history was remarkable for over 20 previous crotaline envenomations. He had no history of atopy, asthma, or allergy to horses or dander. He reported a previous reaction to morphine, which consisted only of abdominal pain, but no other allergies to medications. He also reported that some envenomations were now accompanied by transient hives that developed before receiving any medications.

Five hours and 45 minutes after his envenomation, he began receiving ovine-derived polyvalent crotaline Fab antibody fragments (CroFab) as part of an investigational protocol. Infusion of 6 vials diluted in 250 mL normal saline was completed over 1 hour without apparent complications with the exception of mild periorbital edema. Over the next 5 hours, he received intravenous diazepam, several doses of intravenous meperidine and oral hydrocodone for discomfort. Approximately 5 hours after his antivenin infusion was complete, he developed anxiety and approximately 20 pruritic, urticarial lesions up to 1 cm in size on his right arm only. He did not develop hypotension, nausea, vomiting, or respiratory complications at any time. He was treated with diphenhydramine 50 mg IV and methylprednisolone 125 mg IV for a possible allergic reaction to antivenin. The urticaria and periorbital edema resolved within 15 minutes. He subsequently received 2 vials of antivenin diluted in 125mL of normal saline every 6 hours for a total of 3 doses without apparent allergic symptoms. At 2-week follow-up there were no signs or symptoms of serum sickness.

To date, this patient has received CroFab on 5 more ED visits for rattlesnake envenomations. Before administration of CroFab on 2 of the 5 visits he received diphenhydramine 50 mg IV, methylprednisolone 125 mg IV, and cimetidine 300 mg IV. There were no allergic signs or symptoms noted during these 5 hospital stays. In addition the patient has had no symptoms of serum sickness reported after any of the administrations of CroFab.

CroFab is a preparation of ovine Fab immunoglobulin fragments, which is currently being used as antivenom for North American pit viper envenomations. The unfractionated serum is then purified and digested to yield a product that

contains Fab fragments, which are venom specific.[1] Only a handful of cases of acute allergic reaction or serum sickness after CroFab administration have been published. Dart et al reported 6 acute allergic reactions in their series of 42 administrations of CroFab, however 5 of the 6 appeared to have been from a particular lot of product that may have been improperly purified.[1] The resulting CroFab would have contained a larger proportion of the Fc portion of the immunoglobulin which is much more likely to cause either an acute allergic reaction or serum sickness. In another trial by Dart et al, 11 patients received CroFab without a single case of an acute allergic reaction or serum sickness.[2]

Our patient is interesting in two respects. First he may be the only patient to have received CroFab on more than one occasion, and he is almost certainly the only patient to have received it on 6 separate visits for 6 rattlesnake envenomations. Second, he showed some mild subacute allergic symptoms after his first exposure to CroFab, but has received it an additional 5 times without apparent adverse effects. On three of these occasions he did not receive any pretreatment or treatment for acute allergic reaction. It is not clear that the urticaria and angioedema noted after the first infusion of CroFab were related to the Fab fragments, as the patient had received several other medications for pain and anxiety which may have caused his allergic symptoms. What is clear, however, is that the patient's symptoms quickly resolved and have not been noted on several other exposures to CroFab. Testing to measure human antisheep antibodies has not been performed in this patient. Our experience with this patient confirms the low published rates of adverse reactions to CroFab, including acute allergic reaction and long-term reactions such as serum sickness. Our experience also suggests that CroFab may be repeatedly administered to the same patient without acute or subacute allergic reactions.

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References

1. Dart R, McNally J: Efficacy, safety, and use of snake antivenoms in the United States. Ann Emerg Med 2001;37:181-9
MEDLINE CROSSREF ABSTRACT FULL TEXT

2. Dart R, Seifert S, Carroll L, et al: Affinity-purified, mixed monospecific crotalid antivenom ovine Fab for the treatment of crotalid venom poisoning. Ann Emerg Med 1997;30:33-9
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